



Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer **MANULI RYCO Hydraulics Sdn. Bhd.**

Address Plot 207, Kuala Ketil Industrial Estate, Kuala Ketil, Kedah, 09300, Malaysia

Place of Production MANULI RYCO Hydraulics Sdn. Bhd.

Plot 207, Kuala Ketil Industrial Estate, Kuala Ketil, Kedah, 09300, Malaysia

Place of Production Manuli Ryco Hydraulics (Dalian) Co., Ltd.

38 Ying Ri Road, Ying Cheng Zi Industrial Zone, Gan Jing Zi District, Dalian,
Liaoning, 116036, China

Place of Production Manuli Hydraulics (Suzhou) Co.,Ltd.

No. 85, Xinglin Street, Suzhou Industrial Park, Suzhou, Jiangsu, 215021, China

Type Flexible Pipe Couplings And Hoses

Description Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

Designations:

Diehard T1D
Slider T1S
Survivor RQP1
DF1D Diehard
DF1S Slider
DK1D Diehard
DK1S Slider

Teck Wee Chng

Engineering Piping - Senior Specialist to
Lloyd's Register Singapore Pte Ltd
A member of the Lloyd's Register group

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Fire Suppression T1F

Trade Name	SAE100R1
Application	For use on ships and offshore installations classed with Lloyd's Register, as short lengths in systems of fresh and seawater, compressed air, water based hydraulics, hydraulic oil, fuel and lubricating oil.
Specified Standard	Part 5, Chapter 12 of Lloyd's Register's Rules and Regulations for the Classification of Ships (July,2013) Part 5, Chapter 10 of Lloyd's Register's Rules and Regulations for the Classification of Mobile Offshore Units (September 1996 plus Notices Nos. 1, 2, 3, 4, 5 & 6 as applicable) Fire Resistant Testing according to ISO 15540/15541
Ratings	Type: SAE100R1 Sizes: DN 5 to DN 51 Maximum Working Pressure: 40 to 250 bar (refer to appendix) Service Temperature: -40°C to +150°C (refer to appendix) Coupling Material: Carbon Steel AISI Stainless Steel (Option) and Electroplated Fe/Zn12c acc. to AS1789
Other Conditions	Where synthetic rubber hoses are used for oil fuel supply to burners, the hoses are to have external wire braid protection in addition to the integral wire braid. Carbon steel couplings are to be normalized for temperatures below -10°C. In all cases the hoses are to be installed in accordance with the manufacturer's

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instructions and tested to the satisfaction of the attending

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register Singapore Pte Ltd of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document SEATASS230 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Appendix

RATINGS

DIEHARD T1D	DN (mm)	Max. Pressure (bar)
T13D	5	250
T14D	6	225
T15D	8	215
T16D	10	180
T18D	12	160
T110D	16	130
T112D	19	105
T116D	25	90
T120D	31	65
T124D	38	50
T132D	51	40
Temperature Range: -40°C to +100°C		
SLIDER T1S	DN (mm)	Max. Pressure (bar)
T13S	5	250
T14S	6	225
T15S	8	215
T16S	10	180
T18S	12	160
T110S	16	130
T112S	19	105
T116S	25	90
T120S	31	65
T124S	38	50
T132S	51	40
Temperature Range: -40°C to +100°C		
SURVIVOR RQP1	DN (mm)	Max. Pressure (bar)
RQP14	6	225
RQP15	8	215
RQP16	10	180
RQP18	12	160
RQP110	16	130
RQP112	19	120
RQP116	25	90
Temperature Range: -40°C to +150°C		

DF1D DIEHARD	DN (mm)	Max. Pressure (bar)
DF14D	6	225
DF15D	8	215
DF16D	10	180
DF18D	12	160
DF110D	16	130
DF112D	19	105
DF116D	25	90
Temperature Range: -40°C to +100°C		

DF1S SLIDER	DN (mm)	Max. Pressure (bar)
DF14D	6	225
DF15D	8	215
DF16D	10	180
DF18D	12	160
DF110D	16	130
DF112D	19	105
DF116D	25	90
Temperature Range: -40°C to +100°C		

*Part No., Dimension and rated Pressure are in accordance with the information provided in the product datasheet for DF1D.

DK1D DIEHARD	DN (mm)	Max. Pressure (bar)
DK14D	6	295
DK15D	8	250
DK16D	10	230
DK18D	12	200
DK110D	16	150
DK112D	19	125
DK116D	25	110
DK120D	31	100
Temperature Range: -40°C to +100°C		

DK1S SLIDER	DN (mm)	Max. Pressure (bar)
DK14S	6	295
DK15S	8	250
DK16S	10	230
DK18S	12	200
DK110S	16	150

DK112S	19	125
DK116S	25	110
DK120S	31	100
Temperature Range: -40°C to +100°C		

FIRE SUPPRESSION T1F	DN (mm)	Max. Pressure (bar)
T13F	5	250
T14F	6	225
T15F	8	215
T16F	10	180
T18F	12	160
T110F	16	130
T112F	19	105
T116F	25	90
Temperature Range: -40°C to +100°C		



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